

July 2014

Sound Archive

Andrew Noel Kennedy
Worcester Polytechnic Institute

Luke Sebastian Williams
Worcester Polytechnic Institute

Mohammed Saleh Alrayas
Worcester Polytechnic Institute

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Kennedy, A. N., Williams, L. S., & Alrayas, M. S. (2014). *Sound Archive*. Retrieved from <https://digitalcommons.wpi.edu/iqp-all/1814>

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**Bar Harbor Project Center
Sound Archive: Acadia National Park
BH14 1403**

An Interdisciplinary Qualifying Project
Submitted to the faculty of Worcester
Polytechnic Institute
in partial fulfillment of the
requirements for the Degree of
Bachelor of Science

Student Authors:

Andrew Kennedy
Mohammed Alrayas
Luke Williams

Project Advisor:

Professor Frederick Bianchi

Aug 1, 2014

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Abstract: The preservation and archival of current natural soundscapes is an ever growing science. Natural soundscapes around the world are changing due to a wide assortment of noise pollutants, predominantly man-made. The objective of this project was to record and archive the natural sounds of Acadia National Park as well as to create a comprehensive tagging system to categorize these recordings. This was done using a surround sound microphone, and by implementing a thorough index containing a multitude of relevant tags. The results of this project confirmed the value of a tagging system. It also acted to set a baseline for recording procedures and best practices for future projects. This group's work created a foundation that sets the way for future expansion.

Authorship:

Executive Summary: Luke

Introduction: Mohammed, Andrew, Luke

Background: Mohammed, Andrew, Luke

Methodology: Mohammed, Andrew, Luke

Results: Mohammed

Recommendations and Conclusion: Mohammed, Andrew, Luke

Work Cited: Luke

Primary Editor: Andrew

Executive Summary

Due to the currently changing state of global soundscapes, action is needed to preserve natural sounds. Archiving these sounds is a necessary action for the preservation of these soundscapes, and may prove valuable for future research. Recording and archiving is critical to the documentation of ecosystems and their changes.

Acadia National Park is a rich environment that is being damaged by noise pollution. The purpose of this project is to create a database of natural sounds recorded in the Acadia National Park lands, as well as to lay the foundation for a metadata index to tag and identify these sounds

This document summarizes the sound archive project that was completed in Acadia National Park on Mount Desert Island, Maine. The study took place over a course of seven weeks from June 20th to August 2nd of 2014 during which a number of recordings were taken from sites around Acadia. These sites were chosen based on a variety of criteria including, but not limited to sites used in previous sound studies, characteristic sounds of Acadia, general site location, site accessibility, and acoustical zones/forestation levels. The zones were determined through use of 2003 forestation map (Figure 1), provided by the National Park Service, which was checked against our GPS site map (Figure 2). Recordings were also taken from the 4 recording sites used by the previous IQP (Figure 3). Besides these, the team recorded at an additional 25 different locations throughout Acadia, giving us a total site count of 29. The names of these site locations were one of the primary defining tags used in the tagging system. This system comprised of over 25 different recording specific tags including: Date, Day, Weather,



Figure 2: Sound Archive Location Map

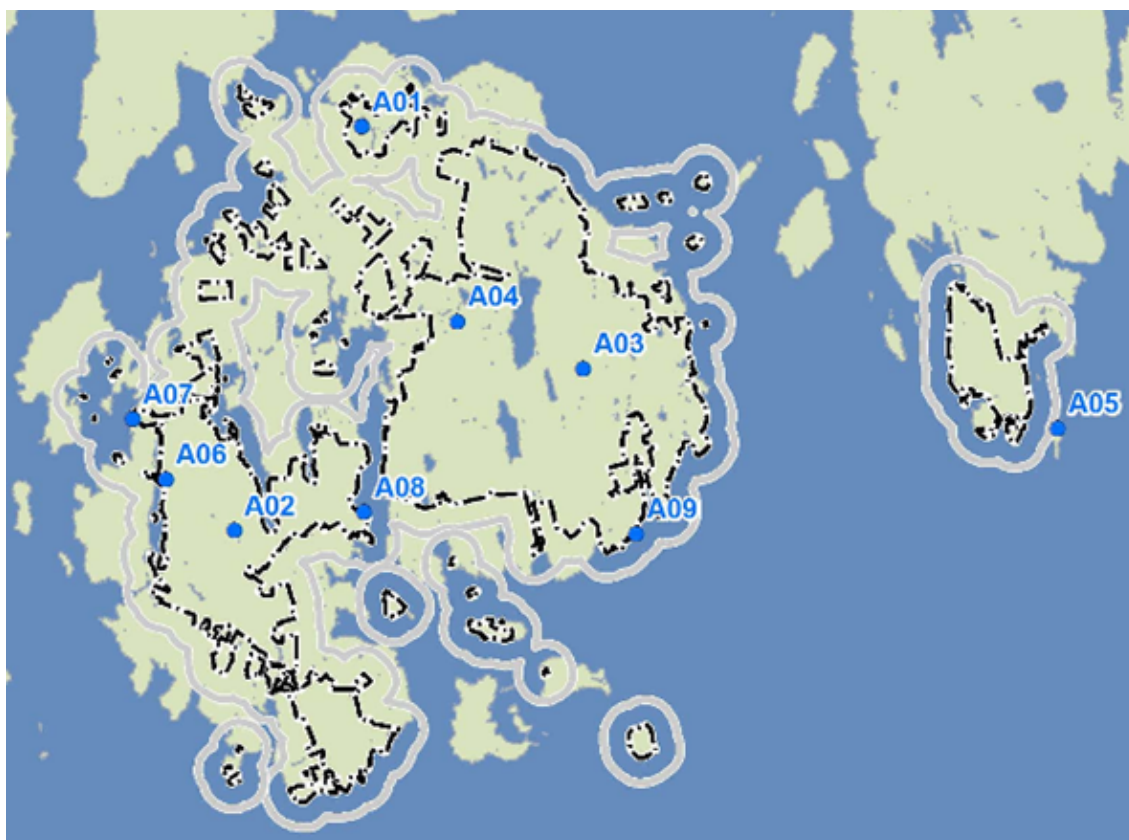


Figure 3: 2013 Sound Analysis Site Map

Chapter 1: Introduction

The mission of the National Park Service is twofold: to protect the natural environment, and make it accessible to all. The need to protect all parts of the wilderness, including sound, was initially outlined in the Organic Act of 1916. This act embodies the values of the National Park System: to preserve nature, and to provide the pleasure of observation without disrupting the natural progression.

Acadia National Park shares these values. Founded in 1929, the park was the first on the east coast. “Awed by its beauty and diversity, early 20th-century visionaries donated the land that became Acadia National Park.” (“Acadia National Park Maine,” 2014). Acadia consists of more than 45,000 acres of wilderness.

Unfortunately, this wilderness is no longer, and the original sounds are one of the lost features. “In 1972, the Noise Control Act required that the federal government enforce noise controls in work and other places, including national parks” (“Managing Soundscapes,” 2012). Sound is considered one of the most delicate parts of an ecosystem, and can be a significant part of how one experiences the environment. Without the audio provided by different animals, the scenery becomes a picture on a wall. Many tourists travel to national parks across the United States “with the hope and expectation of experiencing natural sounds” (Lynch, Joyce, & Fristrup, 2011). Throughout the entire world there are around “10 million unique sounds produced by birds, amphibians, mammals, and insects” (Carlson, 1996). Bryan Faehner, associate director of the National Parks Conservation Association, believes “the uniqueness of a national park and the special experience you can have at a park is less special ... if you can't listen to the

amazing songs of migratory birds [and other such sounds]” (Streater, 2009). Acadia intends to address this loss by protecting what is left of the original soundscape.

In order to help Acadia with its commitment, the team had two goals. First, the team created a sound database that can be accessed by the National Park Service. The Library of Natural Sounds at the Cornell Laboratory of Ornithology provides an excellent model (Carlson, 1996). Second, the team filled the database with a quantity and variety of audio recordings from the Park for a database. In addition to these two goals it will pave the way for database expansion.

With this database and its contents, exhibits were created for the Visitor’s and Nature Centers. These exhibits provided a proof of concept for future educational projects. These exhibits also acted as a new attraction, engaging visitors with a new experience. Such exhibitions will also allow handicapped people, who may not be able to hike or bike, access to Acadia.

These goals distinguish the project from previous IQPs. In the 2012 sound IQP, natural areas were tested for their acoustic qualities (Maino, Schrader, & Bianchi, 2012). In the 2013 sound IQP, measurements were taken describing the sound pollution in the park (Costi, 2013, Acadia Soundscape Analysis). In comparison, the team created an audio database that encompasses a broad and diverse range of total raw audio as possible. This unedited catalog of sounds was documented for future use. With it the Park can create unique exhibits that will preview experiences found throughout Acadia. In turn, these exhibits will attract more visitors and will also document the current soundscape.

Chapter 2: Background

Sound is a significant portion of the natural world. Sound can alter how environments are perceived. Sound can influence people's moods and also affect the people and natural world around it. As such, sound can be used in many ways. In the 1900's, sound started to become a new topic of research. In a recent study, an Oxford psychologist shows that different sounds can change how chocolate tastes. "[They] were significantly able to change the rating of the bitterness and sweetness of the food depending on the sound they were listening to," (Spence, 2012).

There are a wide variety of sounds. Among these sounds, natural sound comprises a significant portion. Throughout the entire world there are around "10 million unique sounds produced by birds, amphibians, mammals, and insects" (Carlson, 1996).

Unfortunately, these sounds are in danger of being drowned out by human activity such as automobiles, industrial machinery, and other forms of interference. So, recording these natural sounds is very important not only to document the soundscape but also for use in research (Brandes, 2008). Sound is especially important in the exploration and enjoyment of national parks and other natural areas.

National parks are a place where natural sounds are predominant compared to many other areas. Unfortunately, the soundscapes in national parks are losing their purity. This loss does not bode well. These soundscapes are changing through a combination of time and human influence. Every year, tourists across the world travel to National Parks "with the hope and expectation of experiencing natural sounds" (Lynch, Joyce, & Fristrup, 2011). In 1998, a survey was conducted within the national parks. The results

showed that more than 70% of Americans felt that “providing opportunities to experience natural quiet and the sounds of nature was a very important reason for having parks and preserves” (Haas and Wakefield, 1998). If the parks can not provide these signature soundscapes, then the park might lose its reputation for clean and pure sound, its support network, and possibly some of its uniqueness.

There has been legislation to help preserve these soundscapes. The National Park Service first addressed sound as a major environmental concern in 1978 (“Managing Soundscapes,” 2012). U.S. National Park Service passed a Director’s Order in 2000 with the intent of protecting the soundscapes in the National Parks. The directive orders action to begin to mitigate damage to the natural soundscape and to begin documenting the impact of sound changes in the parks.

“These park planning efforts will (1) describe the baseline natural ambient sound environment in qualitative and quantitative terms; (2) identify sound sources and sound levels consistent with park legislation and purposes; (3) identify the level, nature and origin of internal and external noise sources; (4) articulate desired future soundscape conditions; and (5) recommend the approaches or actions that will be taken to achieve those conditions or otherwise mitigate noise impacts.” (Stanton, 2004).

Efforts were taken to get involved parties to decrease impact, such as changes in visitor behavior and automotive usage within park borders. One problem specific to Acadia is small aircraft noise. A strategy employed in Acadia to reduce noise pollution and maintain soundscapes was to limit the number of small aircraft tours that fly over the national park (Lynch, Joyce, & Fristrup, 2011). These noises can also be dangerous to

wildlife and can hinder the satisfaction experienced by visitors (Brown, Reed, Dietz, & Fristrup, 2013).

The challenge of preserving soundscapes is becoming more difficult as threats to the environment, such as these, grow ("Managing Soundscapes," 2012). It is necessary to document these soundscapes in an archive so we have a record of their current conditions. This archive can also be used to study changes in the soundscape. When these sound changes occur, it is impossible to obtain the original sound unless it is maintained in a record.

Some methods of storage have proven to help document the soundscape. Sound archiving, for example, is an extremely efficient way to store sound, and natural sound is no exception (Huber, 2013, Modern Recording Techniques). By archiving natural sound recordings, the National Park Service is able to store data and retrieve it. The Park Service can then use this stored information for research or to create educational projects to promote the park. Such an archive can be built in any format, depending on the attributes required.

There are many ways to store sound, though recording technique is critical to all of them. It is possible to store recorded audio in analog or digital formats. Most modern technology follows digital formatting at this point. Both analog and digital have their respective advantages. One advantage of analog storage is that the quality of the recording can remain intact for generations. On the other hand, one major advantage of digital storage is that more data can be stored on a device and digital audio can be written in analog with the proper equipment (Huber, 2013, Modern Recording Techniques).

Metadata tagging is another important component of keeping records in large archives. There are many programs that allow the user to tag general information. The Audio Engineering Society uses many different standard tags. Some of these tags include date and time, GPS location, creator, and file ID Number (Audio Engineering Society, 2011). Our team plans to use these tags and others to provide as much information to a user as possible. Some other important tags that we will include in our IQP are: bitrate, sampling size, featured sounds, and weather conditions.

The WPI IQP program first became involved with Acadia National Park in 2012. Prior teams had projects concerning sound, as well. The two previous sound projects dealt with the interaction of sound and environment. Specifically, the first project dealt with sound art and natural area acoustics, and the second with soundscape analysis (Maino, Schrader, & Bianchi, 2012). The 2013 team dealt with the soundscape analysis. They used recording equipment that could analyze decibel and frequency levels. In order to find the least affected locations, the team measured ambient sound levels at five different locations throughout Acadia National Park. After retrieving the data, the team compared their findings to a 2005 study conducted by the Department of Transportation to check whether the places had similar sound pollution as the DOT 2005 reference guide (Costi, 2013, Acadia Soundscape Analysis).

In comparison, the team's goal was to document the natural soundscapes of Acadia. To do this, the team took different sets of sound recordings around Acadia. Instead of studying the sound, as the predecessors did, the team gathered as much audio as possible and built an archive framework for future use. The equipment that the group used consisted of a Tetricam, four preamplifiers, and a four-channel sound recorder, as

well as some metadata software. This system allowed the group to record high quality sound, and the software allowed for organized archival. The team went further to create a sound exhibition for the visitors, as well.

Sound exhibits have been used successfully in the past. The National Cryptologic Museum included a sound collection in their Vietnam War exhibition (2009, Vietnam War Exhibit). Similarly, the University of Edinburgh School of Physics and Astronomy held a sound exhibition in 2011. The exhibit combined “soundscapes and artwork to examine how we are affected by industrial and urban noise.” During the opening weekend over 1000 people visited this exhibit (“SOUND success in Glasgow,” 2011). These types of exhibits demonstrate the success of sound installations. Our team feels that Acadia’s beauty and immense audio diversity will drive the success of this project.

In the recent years the National Park Service developed an online storage system. The Integrated Resource Management Application (IRMA) is used as an online database for storing a variety of file formats. IRMA contains files ranging from audio to formal research studies to scientific data.. However, the audio files that are on IRMA are difficult to access and are not suitable for educational purposes (“National Park Service IRMA Portal (Integrated Resource Management Applications)”). Another issue is the sheer quantity and file space required by a digital archive, especially when sound files are involved. As such, the Acadia National Park Service would like us to create a new database specifically for Acadia’s sound. While this project will certainly be the work of many people over a long span of time, we want to lay the framework for a successful sound archive for the future.

Chapter 3: Methodology

As was mentioned in Background, soundscapes are always changing due to human influence and natural causes. The team created a sound archive for Acadia National Park. To do this the team collected sounds throughout Acadia. These recordings were archived using metadata software. The recordings were documented with short descriptions, and these served to organize and classify the sound for further use.

3.1 Site Selection

There were several factors to consider when considering where the team needed to record. These factors included site safety and accessibility to recording site as well as target sound. Some other factors also included equipment, software, and relevant procedure.

3.1.1 Site Safety and Accessibility:

Site safety was important because the goal of the project was to record the purest and unsullied sounds of Acadia. Site safety was a consideration for two reasons. First, safety for personnel and equipment was important. Second, each site has allowed the team to learn how to use the equipment and prepare for more exposed recording locations. The team felt that it was best to get recordings as unaffected by human activity as possible, but not at the cost of personal safety. Not only must the site where the team was recording be safe, but the accessibility of the recording site was also very important.

The journey to the recording site was also an important consideration of the team because Acadia National Park consists of different types of terrain - mountains, forests, and coastline. Hiking the many mountains of Acadia can be very strenuous.

3.1.2 Target Sound:

The team's last recording consideration was the target sound. Acadia is home to many different animals and soundscapes. The team hoped to capture some of these audio spectrums with unedited recordings. The team wanted to document the current untainted soundscapes. Unnatural sounds, like human voices or machines, can disrupt the purity of a recording. Some of the target sounds or soundmarks of Acadia are the boom of Thunder Hole, horses on carriage roads, and the winds of Cadillac Mountain. Other recording locations were determined through interviews with Park personnel. It was expected that some recordings captured signature sounds of Acadia. Other recordings also captured the soundscapes at other locations.

In order to help the team select locations for a good assortment of environments, a detailed vegetation map (figure 1) was used. Because the team wished to gather as varied a set of recordings as possible, this map was extremely helpful.

These three factors were the foremost considerations that the team and the park service must keep in mind when they record. It is worth mentioning that the prior WPI Acadia sound groups did some site analysis, and the team reviewed this information when making our selections.

3.2 Equipment, Testing and Relevant Procedure

The project employed a variety of audio equipment. The three primary pieces of equipment were: a TASCAM DR-680 Multitrack Recorder, 4 preamplifiers, and a Core Audio Tetramic. The TASCAM DR-680 is capable of recording four tracks simultaneously. These tracks come from the microphone's four omnidirectional heads that each sends a separate signal to one of the four preamps. From here the recorder combines the signal to create four unique tracks in a single file. These tracks can be outputted in many different formats.

The TASCAM recorder can output audio files in three different formats. These formats include "MP3" "WAV" and "BWF" file extensions. The team chose .wav file format. WAV is a common extension for high quality sound storage files. WAV files are usually compressed files with complex structures. These structures can consist of multiple overlapping tracks. In comparison, MP3 files are much simpler. However, due to the simplicity of the MP3 files, the tracks are combined, and are of lower quality. There are programs like "Audacity" and "Twisted Wave" are used to edit and analyze the files and they will be mentioned later on.

The MP3 and WAV file formats call for different storage strategies. The size of the sound recordings requires a large storage capacity. Files can range from 2 MB to 200 MB depending on the file format. A combination of the Excel spreadsheet and a physical hard drive system were most effective. The team created 2 copies of the files. The first was a raw .wav file, completely unedited, saved directly to the hard drive. The second

was a normalized copy. A stereo copy of the original file was also exported alongside the 4-channel went into the tagging software.

When on site, in order to gather much of the required data, extra equipment was used.

The two pieces of extra equipment used by the team were a Garmin eTrex GPS unit, and a Skymate Speedtech SM18 Windspeed meter, which doubled as a thermometer.

The team considered using the National Park Service database IRMA for storing of these files. However, because of the sheer quantity and size of these audio files, a physical hard drive proved to be the best option. IRMA is a very useful tool however storing over 15GB of audio is not feasible. The index on the other hand could be uploaded to IRMA as a reference for researchers or other interested parties.

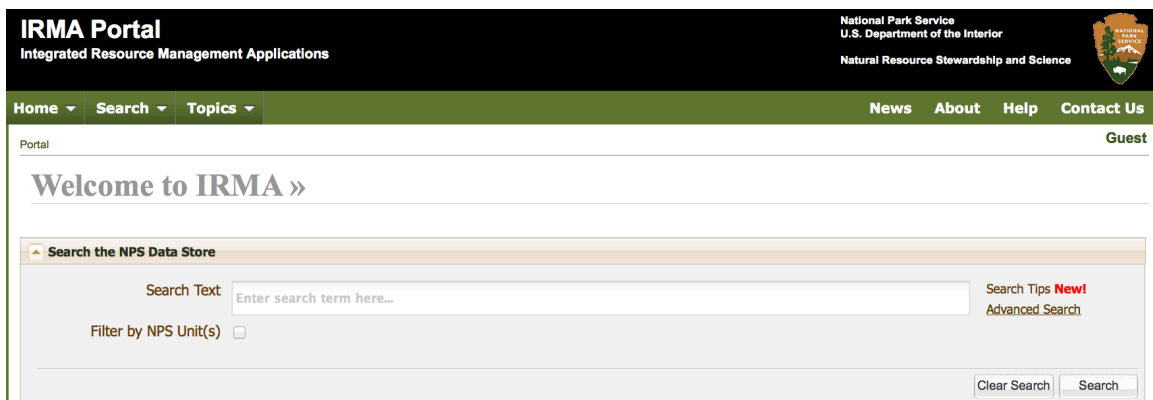
The image is a screenshot of the IRMA Portal website. At the top, there is a dark header with the text "IRMA Portal" and "Integrated Resource Management Applications" on the left, and "National Park Service U.S. Department of the Interior Natural Resource Stewardship and Science" on the right, accompanied by the NPS arrowhead logo. Below the header is a green navigation bar with links: "Home", "Search", "Topics", "News", "About", "Help", and "Contact Us". The main content area has a light gray background. It starts with "Portal" on the left and "Guest" on the right. A large "Welcome to IRMA »" message is centered. Below this is a search section titled "Search the NPS Data Store". It contains a "Search Text" label, a text input field with the placeholder "Enter search term here...", a "Filter by NPS Unit(s)" label with an unchecked checkbox, and a "Search Tips New! Advanced Search" link. At the bottom right of the search section are "Clear Search" and "Search" buttons.

Figure 4: NPS IRMA Database

The equipment is listed below with more detail.

Tascam DR-680:

Portable Multitrack Recorder that has 8-track recording with a resolution of up to 24-bit/96 kHz. Also, 2-track recording resolution of up to 24-bit/192 kHz. Furthermore, it saves the recording in SD/SDHC cards in any of the following formats: BWF, WAV, or MP3. The DR-680 is capable of recording up to four tracks in the MP3 frequencies: 44.1, 48, 96, and 196kHz. Used quantization rates are 16-bit and 24-bit. MP3 files can be recorded at resolutions of 96/128/192/320 kbps



Figure 5: TASCAM DR 680

Core Audio Tetramic and Preamplifiers:

High quality omnidirectional microphone with four heads used to record sound in different directions. This mic allows the user to record one channel per head. The bit rates are 16 and 24 bit fixed, and 32 bit float. This mic can also sample at rates of 44.1, 48, and 96 kHz per second. Four Core Audio preamplifiers and a basic windscreen were used as well



Figure 6: Tetramic, Preamplifiers, and Windscreen

Garmin eTrex

The Garmin eTrex is common in fieldwork. This tool provides the GPS coordinates of the worker/visitor at any place or time around the world. The eTrex uses satellite signals to provide the most efficient pathway and directions to a certain place. This tool has been used in order to provide us with the accurate coordinates of the recording sites.



Figure 8: Garmin eTrex
SpeedTech Industries Skymate SM18:

The Speedtech SM18 digital windspeed meter is a convenient, small, accurate handheld unit. The unit is capable of recording current, average, and maximum wind speed, as well as temperature and wind chill. The meter was used in the field for both windspeed and temperature data. The unit was also conveniently water resistant.



Figure 9: SpeedTech Industries Skymate SM18

Tascam DR-40:

Basic portable flash-memory based audio recorder. It is small (size) and produces fair quality recordings: together this gives us more flexibility at some locations. The design allows for multidirectional sound reception and it has a comfortable grip. The design improves sound quality and ease of recording relative to other similar portable recording equipment. This item was only used on one occasion while Preamplifier hiss on the primary unit was being investigated. The data was pitched due to relatively low quality and only being in stereo.



Figure 10: TASCAM DR-40

3.3 Recording Procedure

From our equipment testing we encountered two challenges. First, distance was important. At a distance, birdsong and similar sounds on the recordings were faded in comparison to closer sources, despite being more uniformly audible in person. Second, the equipment required an experienced touch. The relationship between settings, dials, and other variables was not straightforward. Luckily, both of these problems were

quickly fixed after a short time in the field, which allowed the team to gain the required experience.

All gear, save for the microphone stand, was stored in a waterproofed hiking bag for the duration of the project. The mic itself was also stored inside a water and shock proofed container. When not in use and in a covered area, the bag was left open to the air to avoid condensation being trapped within the bag, or other such adverse conditions. On site, the bag top was opened and peeled down to allow access to the recording equipment. The mic line was disconnected and the mic restored in its case between locations. The preamplifiers, mic line, and observation headphones remained connected to the Tascam unit.

Once a site was chosen, the stand would be set up, the unit turned on, and the mic connected. Only after the mic was connected would the output be turned on. This can be done by simply pressing pause, which will begin gathering sound through the mic, but not yet recording it to a file. While in this state, the levels were monitored, and the gain and trim were set accordingly to avoid maxing out the equipment during wind bursts. It was found that some recordings had a very low output level, despite having appropriate trim and gain. The issue was a levels setting that was accidentally turned down to -48db. When found, this was returned to the highest setting, -6db.

Similarly, some recordings were found to contain serious preamplifier hiss. It was established here that from then on, high gain should be consistently used, and all level changes done solely through trim. After some experimentation, it was found that the hiss was predominantly due to the preamplifiers being double-powered. This meaning that the microphone was being fed phantom power by both the Tascam unit, and the

preamplifiers. The issue was resolved when the batteries were removed from the Core Audio Preamplifiers, allowing power to come solely from the tascam unit. During the period of experimentation, a handheld Tascam unit was tested as well. This was found to be generally inferior to the larger unit.



Figure 11: Images of the equipment and crew in the field

3.3.1 Trim and Level Adjustment

Recordings ranged from 30 to 300 seconds in length. A bitrate of 24-bits per second worked best. These specifications will also serve as tags after the files have been archived because the duration of a sound can be important. Some other audio considerations that the team considered were the sampling rate as well as the recorded content. The sampling rate was 48kHz. This is a common sample size for professional recordings. The team also took notes on the happenings during recording in an audio journal.

3.4 Programs

As mentioned previously in section 3.2, programs like Audacity and Twisted Wave are used to divide the complex sound files into multiple parts, then output them in a modified format. This allowed the team members to improve and clean up the recordings. The combination of Audacity and Twisted Wave gave the team the ability to edit the file without audio processing the original file. This was primarily to remove blank tracks created by the recorder output.

3.4.1 Audacity

Audacity, a free program for mac and windows users, allowed the group to analyze the audio files. The team used this program solely for analyzation of the sound due to the fact that Audacity would not export modified files in the necessary format. Audacity has features that allow the user to display graphs and charts containing helpful information concerning the audio. These graphing capabilities include Time vs Hertz and many others. This was helpful for the team, giving them tools they needed to analyze the files. One such use was in order to find which range the preamplifier noise affected the audio files.

3.4.2 Twisted Wave

Twisted Wave is a trial mac program similar to Audacity. The team was able to use this program on a month long trial, which was sufficient for their needs. Twisted

Wave was ideal for the group, as it has many great features and has the needed output capabilities. It allows the users to edit and cut audio files with ease.

3.4.3 Excel

Excel is a well-known and popular program bundled with most of the operating systems. The team chose this program over many other programs to tag the audio files. Other considerations included Pumilio and Mp3tag. Excel was preferred to these programs due to its simplicity of use and timelessness. It is capable of delivering many great features, and is unlikely to become inaccessible or outdated in the future. One bonus of Excel is that the team will not need any sort of online server to store the data. The excel file simply acts as an index, with the actual audio files stored on a hard drive. Overall, Excel is a very simple and easy program that everyone knows how to use.

3.5 Tagging

Most of the tagging process was dealt concurrently with recording, while some was done once the recordings were finished. Data points such as GPS location, wind speed, temperature, and recording length were gathered and documented during the actual recording process. Other information was gathered afterwards. For example, forestation level was later checked against a detailed forestation map using the gathered GPS locations. The team used Microsoft Excel to tag and index the recordings. Excel has many features that enhanced the tagging process. When used as a metadata system, as many tags as the user wishes can be easily used to sort the files. Such tags include GPS

location, site name, time, date, weather, format, bit rate, altitude, and characteristic sounds such as animals or the ocean. A number of additional tags were also considered and implemented. More and better tags make it quicker, easier, and more reliable to find the desired files in the database. Another feature of Excel that proved useful is its ability to filter information. This feature makes searching the database on a number of specific criteria a simple task. When used in this way Excel proved to be the best option and provided similar results to programs such as the Library of Congress VideoMD and AudioMD archive software ("AudioMD and VideoMD - Technical Metadata for Audio and Video," 2011). The index of sounds is attached in Appendix B. This index also served as an audio journal.

An audio journal was also kept. There are many reasons to keep an audio journal. This audio journal served as a record of everything that was observed in the field, akin to a lab notebook. The journal the team used to take notes about the surrounding conditions while recording as well as to help them remember different tags about certain recordings. The team felt that keeping a notes section in this journal was key, as it allowed for better data tracking before the information could be entered into the Excel database. This was a tool that helped make the project more professional.

Below is the completed tagging sheet

| Natural Tags | | | | | | | | | | | | | | | | | Technical Tags | | | | | | | | | | | |
|----------------|----------------------|---------|-------|-------------|------------------------------------|----------------------|----------------------------------|-------------|------------------------------------|---------------|------------------|-------------------|--------------------------|-----------------------|------------------|--------------------------|----------------|---------------|---------------------|-------------|----------------------|---------------------------|---------------------------|--------------|--------------------------------------|-----------------------------|---------------------------------|------------|
| Recording Name | Original Output Name | Date | Day | Weather | GPS Location (Longitude, Latitude) | Greater Area | Site Name | Site Number | Distance from Closest City (Miles) | Altitude (ft) | Wind Speed (MPH) | Temperature (F/C) | Characteristic Sounds | Terrain | Vegetation Level | Time of Day | Bit Rate | Sampling Size | Length of Recording | File Format | Quality Rating (1-5) | Equipment | 4ch/Stereo | Site Picture | Is there a normalized/processed Copy | Comments | Data Location | |
| 00001 P | 00001_P_140617_6ch | 6/17/14 | Tues | Sun, Wind | N 44°23.745', W 68°13.207' | Acadia National Park | College of the Atlantic - Pier | | 1 | | | | Waves on Rocks | Coast | | 8:37am | 24 | 48k | 1:55 | .wav | | TASCAM DR-680, Tetrasonic | 6ch | | | Lower Frequency Predominant | Hard Drive | |
| 00002 P | 00002_P_140617_1ch | 6/17/14 | Tues | Sun, Wind | N 44°23.745', W 68°13.207' | Acadia National Park | College of the Atlantic - Pier | | 1 | | | | Waves on Rocks | Coast | | 8:37am | 24 | 48k | 1:55 | .wav | | TASCAM DR-680, Tetrasonic | Stereo | | | | Hard Drive | |
| 00003 P | 00003_P_140617_6ch | 6/17/14 | Tues | Sun, Wind | N 44°23.745', W 68°13.207' | Acadia National Park | College of the Atlantic - Pier | | 1 | | | | Team Members | Coast | | 8:45am | 24 | 48k | 0:25 | .wav | | TASCAM DR-680, Tetrasonic | 6ch | | | | Hard Drive | |
| 00004 P | 00004_P_140617_1ch | 6/17/14 | Tues | Sun, Wind | N 44°23.745', W 68°13.207' | Acadia National Park | College of the Atlantic - Pier | | 1 | | | | Team Members | Coast | | 8:45am | 24 | 48k | 0:25 | .wav | | TASCAM DR-680, Tetrasonic | Stereo | | | | Hard Drive | |
| 00005 P | 00005_P_140617_6ch | 6/17/14 | Tues | Sun, Wind | N 44°23.766', W 68°13.267' | Acadia National Park | College of the Atlantic - Forest | | 1 | | | | Team Members, Feedback | Forest | | 8:48am | 24 | 48k | 0:19 | .wav | | TASCAM DR-680, Tetrasonic | 6ch | | | | Hard Drive | |
| 00006 P | 00006_P_140617_1ch | 6/17/14 | Tues | Sun, Wind | N 44°23.766', W 68°13.267' | Acadia National Park | College of the Atlantic - Forest | | 1 | | | | Team Members, Feedback | Forest | | 8:48am | 24 | 48k | 0:19 | .wav | | TASCAM DR-680, Tetrasonic | Stereo | | | | Hard Drive | |
| 00007 P | 00007_P_140617_6ch | 6/17/14 | Tues | Sun, Wind | N 44°23.766', W 68°13.267' | Acadia National Park | College of the Atlantic - Forest | | 1 | | | | Leaves, Crows, Chipmunks | Forest | | 8:49am | 24 | 48k | 1:16 | .wav | | TASCAM DR-680, Tetrasonic | 6ch | | | | Hard Drive | |
| 00008 P | 00008_P_140617_1ch | 6/17/14 | Tues | Sun, Wind | N 44°23.766', W 68°13.267' | Acadia National Park | College of the Atlantic - Forest | | 1 | | | | Leaves, Crows, Chipmunks | Forest | | 8:49am | 24 | 48k | 1:16 | .wav | | TASCAM DR-680, Tetrasonic | Stereo | | | | Hard Drive | |
| 00017 P | 00017_P_140618_6ch | 6/18/14 | Wed | Cloudy | N 44°23.769', W 68°13.260' | Acadia National Park | College of the Atlantic - Forest | | 1 | 35 | 8 | 68°/20° | Wind, Crows, Waves | Forest | | 1:50pm | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tetrasonic | 6ch | | | High Tide | Hard Drive | |
| 00018 P | 00018_P_140618_1ch | 6/18/14 | Wed | Cloudy | N 44°23.769', W 68°13.260' | Acadia National Park | College of the Atlantic - Forest | | 1 | 35 | 8 | 68°/20° | Wind, Crows, Waves | Forest | | 1:50pm | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tetrasonic | Stereo | | | High Tide | Hard Drive | |
| 00011 P | 00011_P_140618_6ch | 6/18/14 | Wed | Overcast | N 44°23.658', W 68°13.167' | Acadia National Park | College of the Atlantic - Stream | | 1 | 54 | 8 | 64°/17° | Stream | Forest | | 11:40am | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tetrasonic | 6ch | | | | Hard Drive | |
| 00012 P | 00012_P_140618_1ch | 6/18/14 | Wed | Overcast | N 44°23.658', W 68°13.167' | Acadia National Park | College of the Atlantic - Stream | | 1 | 54 | 8 | 64°/17° | Stream | Forest | | 11:40am | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tetrasonic | Stereo | | | | Hard Drive | |
| 00013 P | 00013_P_140618_6ch | 6/18/14 | Wed | Overcast | N 44°23.745', W 68°13.207' | Acadia National Park | College of the Atlantic - Pier | | 1 | 10 | 8 | 64°/17° | Wind, Leaves, Waves | Coast | | 11:57am | 24 | 48k | 1:50 | .wav | | TASCAM DR-680, Tetrasonic | 6ch | | | Low Tide | Hard Drive | |
| 00014 P | 00014_P_140618_1ch | 6/18/14 | Wed | Overcast | N 44°23.745', W 68°13.207' | Acadia National Park | College of the Atlantic - Pier | | 1 | 10 | 8 | 64°/17° | Wind, Leaves, Waves | Coast | | 11:57am | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tetrasonic | Stereo | | | Low Tide | Hard Drive | |
| 00015 P | 00015_P_140618_6ch | 6/18/14 | Wed | Overcast | N 44°23.745', W 68°13.207' | Acadia National Park | College of the Atlantic - Pier | | 1 | 10 | 8 | 64°/17° | Wind, Leaves, Waves | Coast | | 12:08pm | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tetrasonic | 6ch | | | Light Rain and strong winds | Hard Drive | |
| 00016 P | 00016_P_140618_1ch | 6/18/14 | Wed | Overcast | N 44°23.745', W 68°13.207' | Acadia National Park | College of the Atlantic - Pier | | 1 | 10 | 8 | 64°/17° | Wind, Leaves, Waves | Coast | | 12:08pm | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tetrasonic | Stereo | | | Light Rain and strong winds | Hard Drive | |
| 00009 P | 00009_P_140618_6ch | 6/18/14 | Wed | Sun | N 44°23.658', W 68°13.167' | Acadia National Park | College of the Atlantic - Stream | | 1 | 54 | 6 | 64°/17° | Stream | Forest | | 10:25am | 24 | 48k | 1:44 | .wav | | TASCAM DR-680, Tetrasonic | 6ch | | | | Hard Drive | |
| 00010 P | 00010_P_140618_1ch | 6/18/14 | Wed | Sun | N 44°23.658', W 68°13.167' | Acadia National Park | College of the Atlantic - Stream | | 1 | 54 | 6 | 64°/17° | Stream | Forest | | 10:25am | 24 | 48k | 1:44 | .wav | | TASCAM DR-680, Tetrasonic | Stereo | | | | Hard Drive | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 00001 | 00001_140618_4ch | 6/18/14 | Wed | Sun, Clouds | N 44°18.452', W 68°11.617' | Acadia National Park | Other Point | | 1 | 5.4 | 31 | 15 | 68°/20° | Wind, Crashing Waves | Coast | Sparsely Vascular Upland | 2:13pm | 24 | 48k | 2:00 | .wav | | TASCAM DR-680, Tetrasonic | 4ch | | Y | Strong Winds | Hard Drive |
| 00002 | 00002_140618_1ch | 6/18/14 | Wed | Sun, Clouds | N 44°18.452', W 68°11.617' | Acadia National Park | Other Point | | 1 | 5.4 | 31 | 15 | 68°/20° | Wind, Crashing Waves | Coast | Sparsely Vascular Upland | 2:13pm | 24 | 48k | 2:00 | .wav | | TASCAM DR-680, Tetrasonic | Stereo | | | Strong Winds | Hard Drive |
| 00003 | 00003_140618_4ch | 6/18/14 | Wed | Sun, Clouds | N 44°18.410', W 68°11.447' | Acadia National Park | Other Point | | 2 | 5.3 | 41 | 10 | 69°/20.6° | Crashing Waves | Coast | Sparsely Vascular Upland | 3:02pm | 24 | 48k | 5:00 | .wav | | TASCAM DR-680, Tetrasonic | 4ch | | Y | Waves crashing on rocks | Hard Drive |
| 00004 | 00004_140618_1ch | 6/18/14 | Wed | Sun, Clouds | N 44°18.410', W 68°11.447' | Acadia National Park | Other Point | | 2 | 5.3 | 41 | 10 | 69°/20.6° | Crashing Waves | Coast | Sparsely Vascular Upland | 3:02pm | 24 | 48k | 5:00 | .wav | | TASCAM DR-680, Tetrasonic | Stereo | | | Waves crashing on rocks | Hard Drive |
| 00005 | 00005_140618_4ch | 6/18/14 | Wed | Clouds | N 44°18.548', W 68°11.333' | Acadia National Park | Other Cliffs | | 3 | 5.2 | 57 | 8 | 68°/20° | Crashing Waves | Coast | Sparsely Vascular Upland | 3:10pm | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tetrasonic | 4ch | | Y | Waves crashing on rocks | Hard Drive |
| 00006 | 00006_140618_1ch | 6/18/14 | Wed | Clouds | N 44°18.548', W 68°11.333' | Acadia National Park | Other Cliffs | | 3 | 5.2 | 57 | 8 | 68°/20° | Crashing Waves | Coast | Sparsely Vascular Upland | 3:10pm | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tetrasonic | Stereo | | | Waves crashing on rocks | Hard Drive |
| 00007 | 00007_140619_4ch | 6/19/14 | Thurs | Clear | N 44°19.247', W 68°11.315' | Acadia National Park | Thunder Hole | | 4 | 4.42 | 37 | 5 | 72°/22.2° | Crash of Thunder Hole | Coast | Sparsely Vascular Upland | 1:30am | 24 | 48k | 3:01 | .wav | | TASCAM DR-680, Tetrasonic | 4ch | | Y | Nighttime crash of Thunder Hole | Hard Drive |
| 00008 | 00008_140619_1ch | 6/19/14 | Thurs | Clear | N 44°19.247', W 68°11.315' | Acadia National Park | Thunder Hole | | 4 | 4.42 | 37 | 5 | 72°/22.2° | Crash of Thunder Hole | Coast | Sparsely Vascular Upland | 1:30am | 24 | 48k | 3:01 | .wav | | TASCAM DR-680, Tetrasonic | Stereo | | | Nighttime crash of Thunder Hole | Hard Drive |
| 00009 | 00009_140619_4ch | 6/19/14 | Thurs | Clear | N 44°19.247', W 68°11.315' | Acadia National Park | Thunder Hole | | 4 | 4.42 | 37 | 5 | 72°/22.2° | Crash of Thunder Hole | Coast | Sparsely Vascular Upland | 1:20am | 24 | 48k | 5:29 | .wav | | TASCAM DR-680, Tetrasonic | 4ch | | Y | Nighttime crash of Thunder Hole | Hard Drive |
| 00010 | 00010_140619_1ch | 6/19/14 | Thurs | Clear | N 44°19.247', W 68°11.315' | Acadia National Park | Thunder Hole | | 4 | 4.42 | 37 | 5 | 72°/22.2° | Crash of Thunder Hole | Coast | Sparsely Vascular Upland | 1:20am | 24 | 48k | 5:29 | .wav | | TASCAM DR-680, Tetrasonic | Stereo | | | Nighttime crash of Thunder Hole | Hard Drive |

| Recording Name | Original Output Name | Date | Day | Weather | GPS Location (Longitude, Latitude) | Greater Area | Site Name | Site Number | Distance from Closest City (Miles) | Altitude (ft) | Wind Speed (MPH) | Temperature (F/C) | Characteristic Sounds | Terrain | Vegetation Level | Time of Day | RI Rate | Sampling Size | Length of Recording | File Format | Quality Rating (1-5) | Equipment | 4ch/Stereo | Site Picture | Is there a normalized/processed copy | Comments | Date Location | |
|----------------|----------------------|---------|-------|----------|------------------------------------|----------------------|----------------------|-------------|------------------------------------|---------------|------------------|-------------------|----------------------------|---------|---|-------------|---------|---------------|---------------------|-------------|----------------------|-----------------------|------------|----------------|--------------------------------------|--|--|------------|
| 00011 | 00011_140619_4ch | 6/19/14 | Thurs | Clear | N 44°19.751', W 68°10.996' | Acadia National Park | Sand Beach | 5 | 3.95 | 21 | 4 | 72°22.2" | Waves on Sand Beach | Coast | Scrub Vascular Upland | 2:00am | 24 | 48k | 5:00 | .wav | | TASCAM DR-680, Tascam | 4ch | | Y | Nighttime Waves on Sand Beach | Hard Drive | |
| 00012 | 00012_140619_4ch | 6/19/14 | Thurs | Clear | N 44°19.751', W 68°10.996' | Acadia National Park | Sand Beach | 5 | 3.95 | 21 | 4 | 72°22.2" | Waves on Sand Beach | Coast | Scrub Vascular Upland | 2:00am | 24 | 48k | 5:00 | .wav | | TASCAM DR-680, Tascam | Stereo | | | | Nighttime Waves on Sand Beach | Hard Drive |
| 00013 | 00013_140620_4ch | 6/20/14 | Fri | Sun | N 44°23.267', W 68°12.268' | Acadia National Park | Bar Harbor Greens | 6 | 0 | 107 | 3 | 67°16.1" | Town Green | Park | Land Use | 9:44am | 24 | 48k | 5:00 | .wav | | TASCAM DR-680, Tascam | 4ch | | Y | Motor Vehicles, People | Hard Drive | |
| 00014 | 00014_140620_4ch | 6/20/14 | Fri | Sun | N 44°23.267', W 68°12.268' | Acadia National Park | Bar Harbor Greens | 6 | 0 | 107 | 3 | 67°16.1" | Town Green | Park | Land Use | 9:44am | 24 | 48k | 5:00 | .wav | | TASCAM DR-680, Tascam | 4ch | | | | Motor Vehicles, People | Hard Drive |
| 00015 | 00015_140620_4ch | 6/20/14 | Fri | Cloudy | N 44°21.091', W 68°13.443' | Acadia National Park | Cadillac Mountain | 7 | 2.68 | 1500 | 12 | 57°13.0" | Winds of Cadillac Mountain | Alpine | Dwarf Shrubland - Deciduous - Upland | 1:50pm | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tascam | 4ch | | Y | Winds, Birds, People | Hard Drive | |
| 00016 | 00016_140620_4ch | 6/20/14 | Fri | Cloudy | N 44°21.091', W 68°13.443' | Acadia National Park | Cadillac Mountain | 7 | 2.68 | 1500 | 12 | 57°13.0" | Winds of Cadillac Mountain | Alpine | Dwarf Shrubland - Deciduous - Upland | 1:50pm | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tascam | Stereo | | | Y | Winds, Birds, People | Hard Drive |
| 00017 | 00017_140620_4ch | 6/20/14 | Fri | Cloudy | N 44°21.091', W 68°13.443' | Acadia National Park | Cadillac Mountain | 7 | 2.68 | 1500 | 12 | 57°13.0" | Winds of Cadillac Mountain | Alpine | Dwarf Shrubland - Deciduous - Upland | 10:21am | 24 | 48k | 5:00 | .wav | | TASCAM DR-680, Tascam | 4ch | | Y | Winds, Birds | Hard Drive | |
| 00018 | 00018_140620_4ch | 6/20/14 | Fri | Cloudy | N 44°21.091', W 68°13.443' | Acadia National Park | Cadillac Mountain | 7 | 2.68 | 1500 | 12 | 57°13.0" | Winds of Cadillac Mountain | Alpine | Dwarf Shrubland - Deciduous - Upland | 10:21am | 24 | 48k | 5:00 | .wav | | TASCAM DR-680, Tascam | Stereo | | | | Winds, Birds | Hard Drive |
| 00019 | 00019_140620_4ch | 6/20/14 | Fri | Clear | N 44°19.566', W 68°16.315' | Acadia National Park | Somes Sound | 8 | 2.44 | 25 | 4 | 67°16.1" | Stream, Somes Sound | Coast | Forest Conifer Upland | 11:20am | 24 | 48k | 5:00 | .wav | | TASCAM DR-680, Tascam | 4ch | | Y | Wind, Stream, Waves on Rocks, Lobster Boat, Traffic, Bells | Hard Drive | |
| 00020 | 00020_140620_4ch | 6/20/14 | Fri | Clear | N 44°19.566', W 68°16.315' | Acadia National Park | Somes Sound | 8 | 2.44 | 25 | 4 | 67°16.1" | Stream, Somes Sound | Coast | Forest Conifer Upland | 11:20am | 24 | 48k | 5:00 | .wav | | TASCAM DR-680, Tascam | 4ch | | | | Wind, Stream, Waves on Rocks, Lobster Boat, Traffic, Bells | Hard Drive |
| 00021 | 00021_140620_4ch | 6/20/14 | Fri | Clear | N 44°19.566', W 68°16.315' | Acadia National Park | Somes Sound | 8 | 2.44 | 25 | 4 | 67°16.1" | Stream, Somes Sound | Coast | Forest Conifer Upland | 11:20am | 24 | 48k | 5:00 | .wav | | TASCAM DR-680, Tascam | 4ch | | Y | Lobster Boat | Hard Drive | |
| 00022 | 00022_140620_4ch | 6/20/14 | Fri | Clear | N 44°19.566', W 68°16.315' | Acadia National Park | Somes Sound | 8 | 2.44 | 25 | 4 | 67°16.1" | Stream, Somes Sound | Coast | Forest Conifer Upland | 11:20am | 24 | 48k | 5:00 | .wav | | TASCAM DR-680, Tascam | 4ch | | | | Lobster Boat | Hard Drive |
| 00023 | 00023_140623_4ch | 6/23/14 | Mon | Sun | N 44°19.847', W 68°17.255 | Acadia National Park | Maple Spring Trail | 9 | 2.54 | 321 | 1.4 | 72°22.2" | Stream, Birds | Forest | Forest Mixed Upland | 2:41pm | 24 | 48k | 5:00 | .wav | | TASCAM DR-680, Tascam | 4ch | 00023 | Y | Light canopy winds | Hard Drive | |
| 00024 | 00024_140623_4ch | 6/23/14 | Mon | Sun | N 44°19.847', W 68°17.255 | Acadia National Park | Maple Spring Trail | 9 | 2.54 | 321 | 1.4 | 72°22.2" | Stream, Birds | Forest | Forest Mixed Upland | 2:41pm | 24 | 48k | 5:00 | .wav | | TASCAM DR-680, Tascam | Stereo | 00023 | | Light canopy winds | Hard Drive | |
| 00025 | 00025_140623_4ch | 6/23/14 | Mon | Sun | N 44°19.847', W 68°17.255 | Acadia National Park | Maple Spring Trail | 9 | 2.54 | 321 | 1.4 | 72°22.2" | Stream, Birds | Forest | Forest Mixed Upland | 2:41pm | 24 | 48k | 5:00 | .wav | | TASCAM DR-680, Tascam | 4ch | 00025 | Y | Recording Location under Campground Road Bridge | Hard Drive | |
| 00026 | 00026_140623_4ch | 6/23/14 | Mon | Sun | N 44°19.847', W 68°17.255 | Acadia National Park | Maple Spring Trail | 9 | 2.54 | 321 | 1.4 | 72°22.2" | Stream, Birds | Forest | Forest Mixed Upland | 2:41pm | 24 | 48k | 5:00 | .wav | | TASCAM DR-680, Tascam | Stereo | 00025 | | Recording Location under Campground Road Bridge | Hard Drive | |
| 00027 | 00027_140623_4ch | 6/23/14 | Mon | Sun | N 44°20.207', W 68°16.753 | Acadia National Park | Maple Spring Trail | 11 | 3.07 | 829 | 2.2 | 72°22.2" | Insect Chirping | Forest | Forest Mixed Upland | 3:20pm | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tascam | 4ch | 00027 | Y | | Hard Drive | |
| 00028 | 00028_140623_4ch | 6/23/14 | Mon | Sun | N 44°20.207', W 68°16.753 | Acadia National Park | Maple Spring Trail | 11 | 3.07 | 829 | 2.2 | 72°22.2" | Insect Chirping | Forest | Forest Mixed Upland | 3:20pm | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tascam | Stereo | 00027 | | | Hard Drive | |
| 00029 | 00029_140623_4ch | 6/23/14 | Mon | Sun | N 44°20.207', W 68°16.753 | Acadia National Park | Maple Spring Trail | 11 | 3.07 | 829 | 2.2 | 72°22.2" | Insect Chirping | Forest | Forest Mixed Upland | 3:20pm | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tascam | 4ch | 00027 | Y | | Hard Drive | |
| 00030 | 00030_140623_4ch | 6/23/14 | Mon | Sun | N 44°20.207', W 68°16.753 | Acadia National Park | Maple Spring Trail | 11 | 3.07 | 829 | 2.2 | 72°22.2" | Insect Chirping | Forest | Forest Mixed Upland | 3:20pm | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tascam | 4ch | 00027 | | | Hard Drive | |
| 00031 | 00031_140623_4ch | 6/23/14 | Mon | Sun | N 44°19.344', W 68°16.909 | Acadia National Park | Maple Spring Trail | 12 | 2.76 | 497 | 2 | 72°22.2" | Dripping Water | Forest | Forest Mixed Upland | 4:00pm | 24 | 48k | 5:00 | .wav | | TASCAM DR-680, Tascam | 4ch | 00031 | Y | Stream and Dripping water | Hard Drive | |
| 00032 | 00032_140623_4ch | 6/23/14 | Mon | Sun | N 44°19.344', W 68°16.909 | Acadia National Park | Maple Spring Trail | 12 | 2.76 | 497 | 2 | 72°22.2" | Dripping Water | Forest | Forest Mixed Upland | 4:00pm | 24 | 48k | 5:00 | .wav | | TASCAM DR-680, Tascam | Stereo | 00031 | | Stream and Dripping water | Hard Drive | |
| 00033 | 00033_140624_4ch | 6/24/14 | Tues | Overcast | N 44°21.711', W 68°12.696' | Acadia National Park | Emery Trail | 13 | 1.81 | 488 | 1 | 70°21.1" | Ruile, Birds | Forest | Woodland Conifer Upland | 3:40pm | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tascam | 4ch | 00033 | Y | | Hard Drive | |
| 00034 | 00034_140624_4ch | 6/24/14 | Tues | Overcast | N 44°21.711', W 68°12.696' | Acadia National Park | Emery Trail | 13 | 1.81 | 488 | 1 | 70°21.1" | Ruile, Birds | Forest | Woodland Conifer Upland | 3:40pm | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tascam | Stereo | 8 | | | Hard Drive | |
| 00035 | 00035_140624_4ch | 6/24/14 | Tues | Overcast | N 44°21.618', W 68°12.654 | Acadia National Park | Emery Trail | 14 | 1.92 | 575 | 2.27 | 69°20.6" | Birds, Chipmunk, Rustling | Forest | Woodland Conifer Upland | 4:07pm | 24 | 48k | 4:44 | .wav | | TASCAM DR-680, Tascam | 4ch | 00035 | Y | | Hard Drive | |
| 00036 | 00036_140624_4ch | 6/24/14 | Tues | Overcast | N 44°21.618', W 68°12.654 | Acadia National Park | Emery Trail | 14 | 1.92 | 575 | 2.27 | 69°20.6" | Birds, Chipmunk, Rustling | Forest | Woodland Conifer Upland | 4:07pm | 8 | 48k | 4:44 | .wav | | TASCAM DR-680, Tascam | Stereo | 00035 | | | Hard Drive | |
| 00037 | 00037_140624_4ch | 6/24/14 | Tues | Overcast | N 44°21.643', W 68°12.652 | Acadia National Park | Emery Trail | 15 | 1.89 | 530 | 2 | 69°20.6" | Birds, Rustle | Forest | Woodland Conifer Upland | 4:10pm | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tascam | 4ch | 00037 | Y | | Hard Drive | |
| 00038 | 00038_140624_4ch | 6/24/14 | Tues | Overcast | N 44°21.643', W 68°12.652 | Acadia National Park | Emery Trail | 15 | 1.89 | 530 | 2 | 69°20.6" | Birds, Rustle | Forest | Woodland Conifer Upland | 4:10pm | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tascam | Stereo | 00037 | | | Hard Drive | |
| 00039 | 00039_140625_4ch | 6/25/14 | Wed | Overcast | N 44°21.745', W 68°11.686' | Acadia National Park | Beaver Pond | 16 | 1.82 | 142 | 1 | 73°22.8" | Stream, Birds | Marsh | Grassland Wetland | 9:10am | 24 | 48k | 0:34 | .wav | | TASCAM DR-680, Tascam | 4ch | 00039 | Y | | Hard Drive | |
| 00040 | 00040_140625_4ch | 6/25/14 | Wed | Overcast | N 44°21.745', W 68°11.686' | Acadia National Park | Beaver Pond | 16 | 1.82 | 142 | 1 | 73°22.8" | Stream, Birds | Marsh | Grassland Wetland | 9:10am | 24 | 48k | 0:56 | .wav | | TASCAM DR-680, Tascam | Stereo | 00040 | | | Hard Drive | |
| 00041 | 00041_140625_4ch | 6/25/14 | Wed | Overcast | N 44°21.745', W 68°11.686' | Acadia National Park | Beaver Pond | 16 | 1.82 | 142 | 1 | 73°22.8" | Stream, Birds | Marsh | Grassland Wetland | 9:22am | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tascam | 4ch | 00041 | Y | | Hard Drive | |
| 00042 | 00042_140625_4ch | 6/25/14 | Wed | Overcast | N 44°21.745', W 68°11.686' | Acadia National Park | Beaver Pond | 16 | 1.82 | 142 | 1 | 73°22.8" | Stream, Birds | Marsh | Grassland Wetland | 9:22am | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tascam | Stereo | 00041 | | | Hard Drive | |
| 00043 | 00043_140625_4ch | 6/25/14 | Wed | Overcast | N 44°21.745', W 68°11.686' | Acadia National Park | Beaver Pond | 16 | 1.82 | 142 | 1 | 73°22.8" | Stream, Birds | Marsh | Grassland Wetland | 9:22am | 24 | 48k | 2:03 | .wav | | TASCAM DR-680, Tascam | 4ch | 00043 | Y | | Hard Drive | |
| 00044 | 00044_140625_4ch | 6/25/14 | Wed | Overcast | N 44°21.745', W 68°11.686' | Acadia National Park | Beaver Pond | 16 | 1.82 | 142 | 1 | 73°22.8" | Stream, Birds | Marsh | Grassland Wetland | 9:22am | 24 | 48k | 2:03 | .wav | | TASCAM DR-680, Tascam | Stereo | 00043 | | | Hard Drive | |
| 00045 | 00045_140626_4ch | 6/26/14 | Thurs | Rain | N 44°21.618', W 68°12.654 | Acadia National Park | Seur de Monte Spring | 17 | 1.81 | 200 | 1 | 59°19.5" | Rain | Forest | Forest Mixed Upland | 9:22am | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tascam | 4ch | 00045, 00045-1 | Y | Light Drizzle after rain storm | Hard Drive | |
| 00046 | 00046_140626_4ch | 6/26/14 | Thurs | Rain | N 44°21.618', W 68°12.654 | Acadia National Park | Seur de Monte Spring | 17 | 1.81 | 200 | 1 | 59°19.5" | Rain | Forest | Forest Mixed Upland | 9:22am | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tascam | Stereo | 00045, 00045-1 | | Light Drizzle after rain storm | Hard Drive | |
| 00047 | 00047_140627_4ch | 6/27/14 | Fri | Sun | N 44°28.566', W 68°19.111' | Acadia National Park | Hadley Pt | 18 | 6.79 | 66 | 0 | 66°18.6" | Ruile, Birds | Forest | Forest Mixed Upland | 9:22am | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tascam | 4ch | 00047 | Y | see 00085 | Hard Drive | |
| 00048 | 00048_140627_4ch | 6/27/14 | Fri | Sun | N 44°28.566', W 68°19.111' | Acadia National Park | Hadley Pt | 18 | 6.79 | 66 | 0 | 66°18.6" | Ruile, Birds | Forest | Forest Mixed Upland | 9:22am | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tascam | Stereo | 00047 | | see 00086 | Hard Drive | |
| 00049 | 00049_140627_4ch | 6/27/14 | Fri | Sun | N 44°28.566', W 68°19.111' | Acadia National Park | Hadley Pt | 18 | 6.79 | 66 | 0 | 66°18.6" | Ruile, Birds | Forest | Forest Mixed Upland | 9:22am | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tascam | 4ch | 00049, 00049-1 | Y | see 00085 | Hard Drive | |
| 00050 | 00050_140627_4ch | 6/27/14 | Fri | Sun | N 44°28.566', W 68°19.111' | Acadia National Park | Hadley Pt | 18 | 6.79 | 66 | 0 | 66°18.6" | Ruile, Birds | Forest | Forest Mixed Upland | 9:22am | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tascam | Stereo | 00049, 00049-2 | | see 00086 | Hard Drive | |
| 00051 | 00051_140627_6ch | 6/27/14 | Fri | Sun | N 44°25.654', W 68°21.889 | Acadia National Park | Thompson Island | 19 | 0.9 | 16 | 12 | 67°19.4" | Wind, Waves | Forest | ZoneForest Mixed Upland | 9:58am | 24 | 48k | 1:30 | .wav | | TASCAM DR-680, Tascam | 4ch | | Y | | Hard Drive | |
| 00052 | 00052_140627_4ch | 6/27/14 | Fri | Sun | N 44°25.654', W 68°21.889 | Acadia National Park | Thompson Island | 19 | 0.9 | 16 | 12 | 67°19.4" | Wind, Waves | Forest | ZoneForest Mixed Upland | 9:58am | 24 | 48k | 1:30 | .wav | | TASCAM DR-680, Tascam | Stereo | | | | Hard Drive | |
| 00053 | 00053_140627_4ch | 6/27/14 | Fri | Sun | N 44°25.654', W 68°21.889 | Acadia National Park | Thompson Island | 19 | 0.9 | 16 | 12 | 67°19.4" | Wind, Waves | Forest | ZoneForest Mixed Upland | 9:58am | 24 | 48k | 1:00 | .wav | | TASCAM DR-680, Tascam | 4ch | | Y | With wind block | Hard Drive | |
| 00054 | 00054_140627_4ch | 6/27/14 | Fri | Sun | N 44°25.654', W 68°21.889 | Acadia National Park | Thompson Island | 19 | 0.9 | 16 | 12 | 67°19.4" | Wind, Waves | Forest | ZoneForest Mixed Upland | 9:58am | 24 | 48k | 1:00 | .wav | | TASCAM DR-680, Tascam | Stereo | | | | With wind block | Hard Drive |
| 00055 | 00055_140627_4ch | 6/27/14 | Fri | Sun | N 44°20.002', W 68°24.449 | Acadia National Park | Pretty Marsh | 20 | 3 | 150 | 0 | 70°21.1" | Birds | Forest | Forest Conifer Upland | 10:31am | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Tascam | 4ch | 00055 | Y | Argemone Rubra in background, see 00087 | Hard Drive | |
| 00056 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Recording Name | Original Output Name | Date | Day | Weather | GPS Location (Longitude, Latitude) | Greater Area | Site Name | Site Number | Distance from Closest City (Miles) | Altitude (ft) | Wind Speed (MPH) | Temperature (F/C) | Characteristic Sounds | Terrain | Vegetation Level | Time of Day | Bit Rate | Sampling Size | Length of Recording | File Format | Quality Rating (1-5) | Equipment | | 4ch/Stereo | Site Picture | Is there a normalized/processed copy | Comments | Date Location |
|----------------|----------------------|---------|-----|---------|------------------------------------|----------------------|--------------|-------------|------------------------------------|---------------|------------------|-------------------|-----------------------|---------|------------------------------|-------------|----------|---------------|---------------------|-------------|----------------------|--------------------------|--|------------|--------------|--------------------------------------|----------|---------------|
| 00083 | 00083_140711_4ch | 7/11/14 | Fri | Clear | N44.32068°, W68.18853° | Acadia National Park | Thunder Hole | 4 | 4.71 | 47 | 2 | 74°/23.3° | Thunder Hole | Coast | Sparse Vascular Upland | 12:20am | 24 | 48k | 4:00 | .wav | | TASCAM DR-680, Stereo | | 4ch | | Y | | Hard Drive |
| 00084 | 00084_140711_4ch | 7/11/14 | Fri | Clear | N44.32068°, W68.18853° | Acadia National Park | Thunder Hole | 4 | 4.71 | 47 | 2 | 74°/23.3° | Thunder Hole | Coast | Sparse Vascular Upland | 12:20am | 24 | 48k | 4:00 | .wav | | TASCAM DR-680, Stereo | | Stereo | | | | Hard Drive |
| 00085 | 00085_140711_4ch | 7/11/14 | Fri | Sun | N44°28.566', W68°19.111' | Acadia National Park | Hadley Pt. | 18 | 6.79 | 66 | 1.5 | 85°/29.4° | Birds | Forest | Forest Mixed Upland | 11:41am | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Stereo | | 4ch | | Y | | Hard Drive |
| 00086 | 00086_140711_4ch | 7/11/14 | Fri | Sun | N44°28.566', W68°19.111' | Acadia National Park | Hadley Pt. | 18 | 6.79 | 66 | 1.5 | 85°/29.4° | Birds | Forest | Forest Mixed Upland | 11:41am | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Stereo | | Stereo | | | | Hard Drive |
| 00087 | 00087_140711_4ch | 7/11/14 | Fri | Sun | N44°20.002', W68°24.449' | Acadia National Park | Pretty Marsh | 20 | 3 | 150 | 0 | 78°/25.5° | Birds | Forest | Forest Conifer Upland | 12:29pm | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Stereo | | 4ch | | Y | | Hard Drive |
| 00088 | 00088_140711_4ch | 7/11/14 | Fri | Sun | N44°20.002', W68°24.449' | Acadia National Park | Pretty Marsh | 20 | 3 | 150 | 0 | 78°/25.5° | Birds | Forest | Forest Conifer Upland | 12:29pm | 24 | 48k | 3:00 | .wav | | TASCAM DR-680, Stereo | | Stereo | | | | Hard Drive |
| 00089 | 00089_140711_4ch | 7/11/14 | Fri | Sun | N44°18.871', W68°23.588' | Acadia National Park | Pine Hill | 21 | 2.5 | 250 | 0 | 75°/23.8° | Birds | Forest | Mixed Forest | 12:45pm | 24 | 48k | 4:00 | .wav | | TASCAM DR-680, Stereo | | 4ch | | Y | | Hard Drive |
| 00090 | 00090_140711_4ch | 7/11/14 | Fri | Sun | N44°18.871', W68°23.588' | Acadia National Park | Pine Hill | 21 | 2.5 | 250 | 0 | 75°/23.8° | Birds | Forest | Mixed Forest | 12:45pm | 24 | 48k | 4:00 | .wav | | TASCAM DR-680, Stereo | | Stereo | | | | Hard Drive |
| 00091 | 00091_140711_4ch | 7/11/14 | Fri | Sun | N44°18.967', W68°23.843' | Acadia National Park | Hodgdon Pond | 22 | 2.4 | 232 | 0 | 78°/25.5° | Birds | Forest | Quinn's Wetland | 1:01pm | 24 | 48k | 3:01 | .wav | | TASCAM DR-680, Stereo | | 4ch | | Y | | Hard Drive |
| 00092 | 00092_140711_4ch | 7/14/14 | Fri | Sun | N44°18.967', W68°23.843' | Acadia National Park | Hodgdon Pond | 22 | 2.4 | 232 | 0 | 78°/25.5° | Birds | Forest | Quinn's Wetland | 1:01pm | 24 | 48k | 3:01 | .wav | | TASCAM DR-680, Stereo | | Stereo | | | | Hard Drive |

00093

3.6 Audio Post-Processing

After file tagging, the team had to post process a number of the recorded files. After the 4-channel surround sound files were captured, they were uploaded to a Macintosh workstation. From here, the team checked the quality of each recording. If the team found the recording was of sufficient quality, it was archived directly to the hard drive. If the file was found to contain significant aggregates or preamplifier hiss, then it was processed until it was high quality enough for archival. In the case of modified files, an original copy was also archived.

As mentioned previously in Section 3.3 the team used Audacity and TwistedWave as a standard editing software in this project due to the great features available. One Audacity feature in particular, the noise reduction profile, was extremely useful. The Noise Reduction Profile allowed the team to sample white noise in the file and identify it throughout the audio. Audacity then eliminated the white noise from that audio and made it sound smoother and cleaner, without affecting the ambient environment recorded.

Another software used by the team was TwistedWave. TwistedWave has many similar features to Audacity. The team's primary use of the program had to do with sound reduction in the file. TwistedWave allows the user to reduce unwanted noise in the file by selecting a frequency range, and reducing all ambient noise within it.

3.7 Archiving

The archiving process was also dealt with while tagging. Audio files were saved onto a hard drive after being recorded. This hard drive served as the database for the Acadia Sound Archive. The files were saved under a series of folders. Specific files could be found under the folder with the relevant site name. There is also a search bar where a user can find any file by the specific file name without going through the folders. This system of organizing makes finding a file very simple.

Chapter 4: Results

After spending almost two months in ANP, the Bar Harbor IQP has come to a close, and the team has reviewed their final results. These results consist of a comprehensive Excel Tagging system, a total duration of 6 hours of pure audio recording files, and a sound exhibit.

The set metadata categories used in the tagging system are fairly extensive, consisting of twenty-nine categories to define any given audio file. These categories are as follows: Recording Name, Original Output Name, Date, Day, Weather, GPS Location (Longitude, Latitude), Greater Area, Site Name, Site Number, Distance from Closest City (Miles), Altitude (ft), Wind Speed (MPH), Temperature (F°/C°), Characteristic Sounds, Terrain, Vegetation Level, Time of Day, Bit Rate, Sampling Size, Length of Recording, File Format, Quality Rating (1-5), Equipment, Model Number, 4ch/Stereo, Site Picture, Normalized/Processed copy, Comments and Data Location. Every file in our database has been tagged with relevant information in every category. In some cases, a slot may be left blank if the information of that category is unknown, such as if a piece of measuring equipment is not functioning at the time of the recording. The comments section may note equipment failure or other information that doesn't directly fit into a tagging category.

Using these categories, any user can easily search for sound files based on a number of criteria with minimal difficulty. For example, if the user wishes for sound files solely recorded on the top of Cadillac Mountain at night, they would be able to bring up

that selection with relative ease. Another example would be if a user wanted to find a selection of files at a certain location on a certain date. Such criteria can be searched for on the excel sheet, and then corresponding audio files can be subsequently retrieved from the hard drive database.

One of the interesting categories that the team came up with and found very useful and descriptive was the comment category. This category allowed the team to add extra information about the audio file that didn't fit within the other predefined categories. In other words, the comment section provides people with more options to search for, even when some of the contained information is not available throughout all files.

One of the major results is that the team has covered a large variety of landscapes at ANP. Using a vegetation map [See appendix C] to check locations, the team chose sites that would cover a variety of forestation types. The team gathered recordings from a number of these different vegetation zones, such as conifer forest or deciduous woodland, to wetlands, shrublands, and coastline. In order to gather these files, the general locations were chosen before hand based on a few criteria, including these forestation types, as well as proximity to other recording sites. Given the high variation in zone even in small areas, each recording's GPS location was checked and compared to the vegetation map to place a zone.

4.1 Exhibit

Sound exhibits are useful for allowing people to experience soundscapes that may be unavailable to them, such as those that may no longer be. Sound is an important part

of any location's aesthetic, and thoughtful use of sound in the right places, including many exhibits, can greatly enhance the feeling and effect of the exhibit as a whole. For our group's exhibit work, sound was our primary concern. There are many cases where sound is used to beautifully compliment the focus of an exhibit, but less commonly is the sound itself the focus.

Around the world there are already a number sound exhibits. One such exhibit is the 'Museum of Endangered Sounds', which is an audio-visual web exhibit containing a number of sounds. The exhibits mostly services museums, such as a few in San Diego, Paris and Valencia. Sound exhibits have been implemented and proven successful in an assortment of locations worldwide. Acadia National Park seems like yet another location where such an exhibit could be of value.

It was the team's intent to begin work on the exhibit at the Acadia Visitor Center. Unfortunately, access to the Visitor Center equipment was restricted during our stay. Despite this turn of events, the team was able to produce a CD mix of sounds for the Center to experiment with in the future.

4.2 Recommendations and Conclusion:

While our team strove to make our recordings of the highest quality possible, a number of issues were encountered. Some of these were due to gear issues in specific circumstances. The primary issue was, oddly enough, that the microphone was very sensitive. As such, some of our recordings are dominated by the sounds of wind through the surrounding trees. In other instances, the microphone's range was not ideal. This

would frequently lead to a sound, clear in reality, such as a bird or frog, not to be as audible in the recording compared to background noise.

While the Core Audio Tetramic is obviously a high quality microphone, the team believes it was not ideal given the high-wind field conditions it had been subject to. As such, it is recommended that time is taken to find another microphone better suited to the field conditions. Due to the strong wind in the park, it is also recommended that a good quality windscreen is found to accompany whatever microphone is chosen.

Another type of microphone that could be useful would be a shotgun microphone. These microphones are extremely effective at recording in a single chosen direction. These types of microphones are typically used for recordings birds and other animals at range. For this reason the team feels that this type of microphone could enhance the project.

Another issue that the team had trouble with was the windscreen. Windscreens are extremely important pieces of equipment while doing field recordings. For this project the team used a deadcat windscreen. There were two major problems with the particular windscreen. First, the windscreen was not designed for the Tetramic. The team encountered this as a problem because there would sometimes be gusts of wind that caused the windscreen to hit the microphone. When the windscreen hit the microphone it would cause a pop in the recordings. The second problem with the windscreen was that it was not thick enough to block heavy bursts of wind. Another useful tool for the Park Service would be an interactive map.

The team would also recommend to the National Park Service and future groups to try and make an interactive sound map. This could be something similar to Google

Earth in the sense that Google Earth shows pictures from different locations. This sound map would display sounds from around Acadia National Park and Mount Desert Island. As a user scrolls over the map they could select a sound and listen to the recording site. This map would need to be hosted on an NPS server along with MP3 versions of the team's recordings. Another feature of the map that would prove useful is the ability to request WAV versions of particular audio files. The team feels that this is an idea that would need further exploration.

During the process of recording, the team conducted an online survey containing ten questions total including general and specific questions. People participated from many places worldwide, including from the Middle East, the United States and some European countries. This makes sense given the affiliations in the IQP site group as a whole, and the fact that the survey was primarily spread via social media. As such, the results may be slightly skewed in terms of age group, or other factors.

The team started that survey in order to help the park's decision-making process. ANP has to know whether a sound exhibit would be a desirable addition, and whether it could provide a better experience to the visitors. The survey was mainly designed to gauge how important sound is to a visitor compared to other aspects of the park environment. This survey is attached in A

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Appendix A: Additional Site Maps





Appendix B: Survey Questions & Results

What is your occupation?

Answered: 17 Skipped: 0

Responses (17)

Text Analysis

My Categories

Categorize as... ▾

Filter by Category ▾

Search responses



Showing 17 responses

Developer

6/24/2014 2:25 PM

[View respondent's answers](#)

Student

6/23/2014 1:48 PM

[View respondent's answers](#)

Student

6/23/2014 1:42 PM

[View respondent's answers](#)

Student

6/23/2014 11:34 AM

[View respondent's answers](#)

student

6/23/2014 10:12 AM

[View respondent's answers](#)

Student

6/23/2014 10:11 AM

[View respondent's answers](#)

Student

6/23/2014 9:33 AM

[View respondent's answers](#)

Student

Q1

Export ▾

What is your name?

Answered: 11 Skipped: 6

Responses (11)

Text Analysis

My Categories

Categorize as... ▾

Filter by Category ▾

Search responses



Showing 11 responses

Raed

6/24/2014 2:25 PM

[View respondent's answers](#)

Ryan Carello

6/23/2014 1:48 PM

[View respondent's answers](#)

Carly Giannini

6/23/2014 1:42 PM

[View respondent's answers](#)

jeje

6/23/2014 10:12 AM

[View respondent's answers](#)

Omar

6/23/2014 10:11 AM

[View respondent's answers](#)

Luke Williams

6/23/2014 9:33 AM

[View respondent's answers](#)

Jillian Proulx

6/23/2014 9:05 AM

[View respondent's answers](#)

Andrew Kennedy

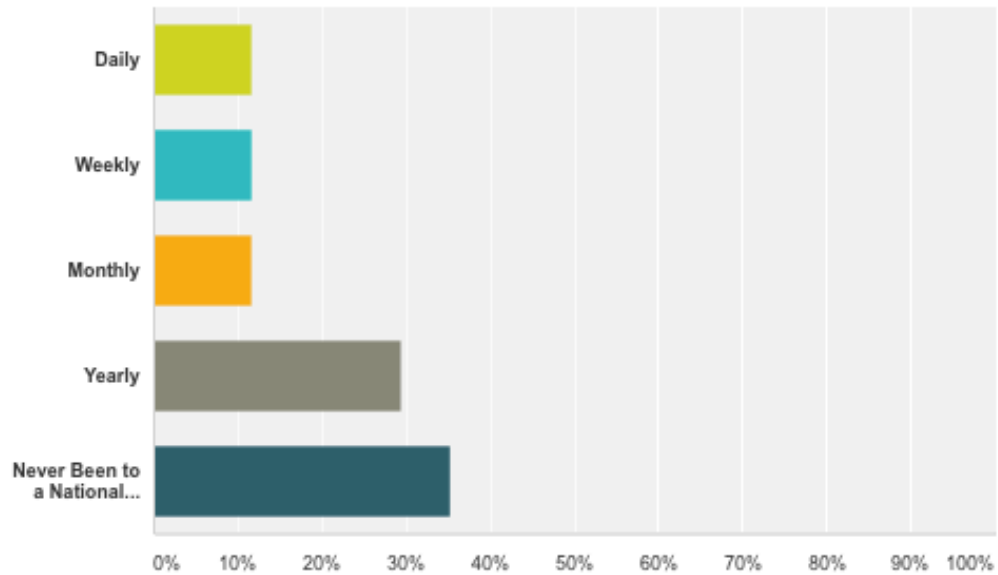
Q3

Customize

Export ▾

How often do you go to the national parks?

Answered: 17 Skipped: 0



| Answer Choices | Responses |
|----------------------------------|-----------|
| ▼ Daily | 11.76% 2 |
| ▼ Weekly | 11.76% 2 |
| ▼ Monthly | 11.76% 2 |
| ▼ Yearly | 29.41% 5 |
| ▼ Never Been to a National Park. | 35.29% 6 |
| Total | 17 |

Q4

Export ▾

What would attract you to a park?

Answered: 17 Skipped: 0

Responses (17)

Text Analysis

My Categories

Categorize as... ▾

Filter by Category ▾

Search responses



Showing 17 responses

Animals

6/24/2014 2:25 PM

[View respondent's answers](#)**Various site seeing attractions**

6/23/2014 1:48 PM

[View respondent's answers](#)**Activities to do**

6/23/2014 1:42 PM

[View respondent's answers](#)**Nature, Hiking**

6/23/2014 11:34 AM

[View respondent's answers](#)**the trees**

6/23/2014 10:12 AM

[View respondent's answers](#)**The games and the fountain**

6/23/2014 10:11 AM

[View respondent's answers](#)**Sounds, Animals, Scenery, Outdoor Activities**

6/23/2014 9:33 AM

[View respondent's answers](#)**The wind and the unique smell**

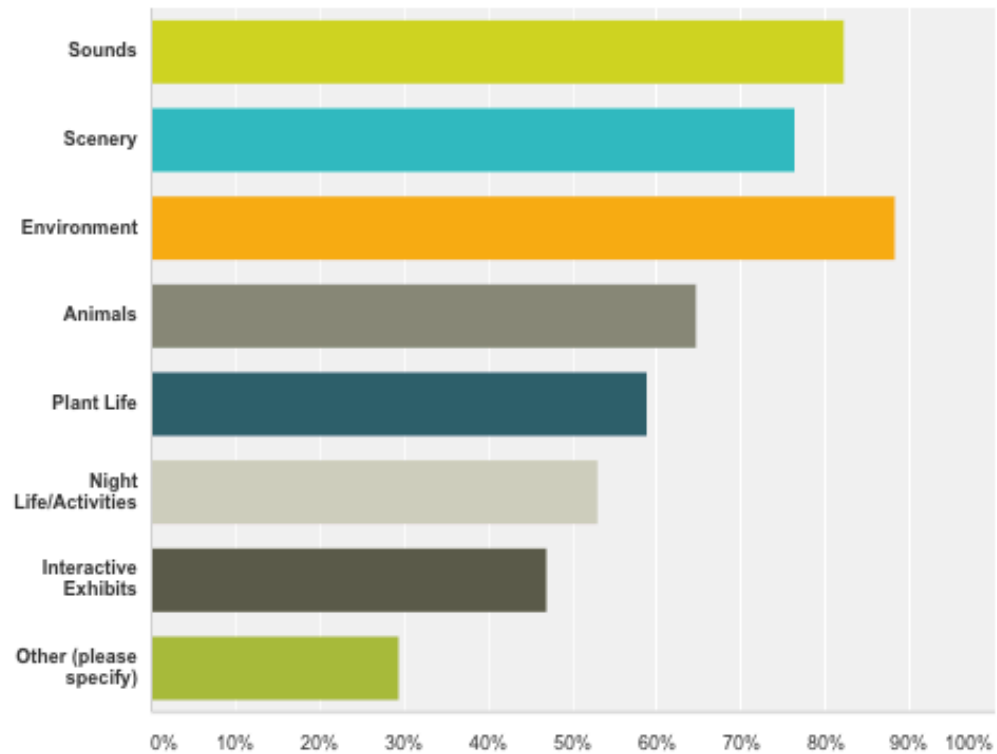
Q5

Customize

Export ▾

What aspects of a national park are valuable to a visitor?

Answered: 17 Skipped: 0



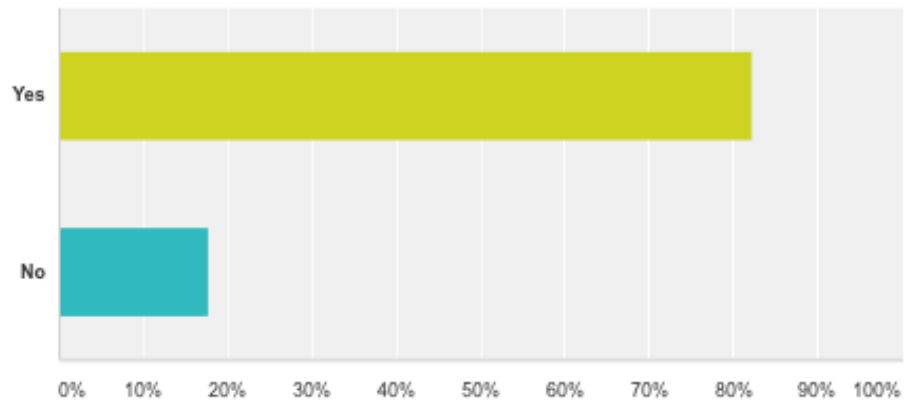
Q6

Customize

Export ▾

Would you appreciate a national park that has a variety of sounds?

Answered: 17 Skipped: 0



| Answer Choices ▾ | Responses ▾ | |
|------------------|-------------|----|
| ▾ Yes | 82.35% | 14 |
| ▾ No | 17.65% | 3 |
| Total | | 17 |

Can you explain how would the sound exhibit make the national park batter?

Answered: 17 Skipped: 0

Responses (17)

Text Analysis

My Categories

Categorize as... ▾

Filter by Category ▾

Search responses



Showing 17 responses

sounds of nature always bring emotions , and that will make the visitors earl just their eyes

6/24/2014 2:25 PM [View respondent's answers](#)

Will let people who are incapable of traveling to certain spots hear the sounds

6/23/2014 1:48 PM [View respondent's answers](#)

It would give you a taste of what to expect before you go around to sites in the park.

6/23/2014 1:42 PM [View respondent's answers](#)

Allow for nature sounds to be heard that are not available at the time. Animal sounds would be cool.

6/23/2014 11:34 AM [View respondent's answers](#)

i think the sound will help the people who came alone to park, to be more relaxed

6/23/2014 10:12 AM [View respondent's answers](#)

When a sound plays on the background

6/23/2014 10:11 AM [View respondent's answers](#)

A sound exhibit could help to promote the park

6/23/2014 9:33 AM [View respondent's answers](#)

~~I think Having a sound exhibit will make the park more accessible and reachable to people. it will give them the~~

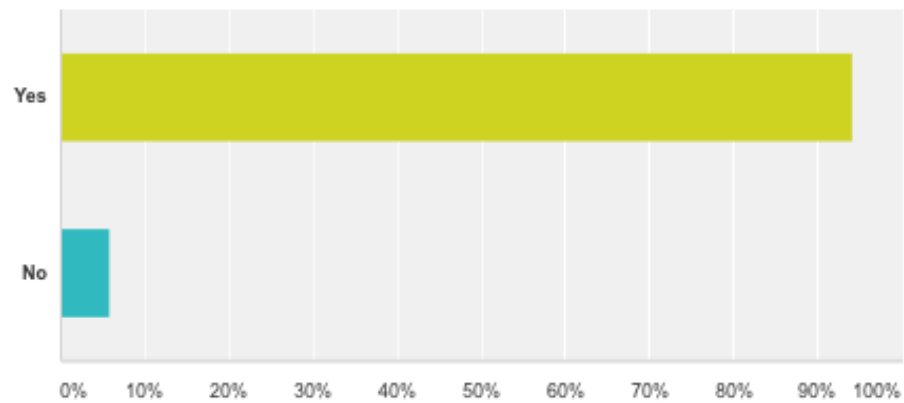
Q8

Customize

Export ▾

Would you appreciate if a park provided a sound exhibit that reflects the park uniqueness?

Answered: 17 Skipped: 0



| Answer Choices ▾ | Responses ▾ |
|------------------|-------------|
| ▾ Yes | 94.12% 16 |
| ▾ No | 5.88% 1 |
| Total | 17 |

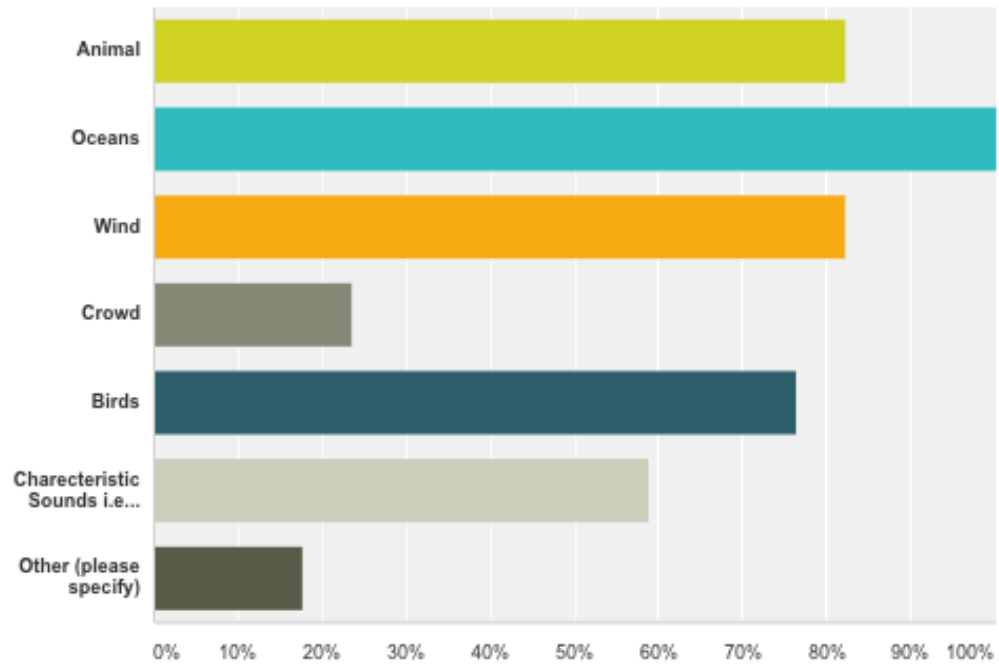
Q9

Customize

Export ▾

When you think of "natural sounds" what types of things come to mind?

Answered: 17 Skipped: 0



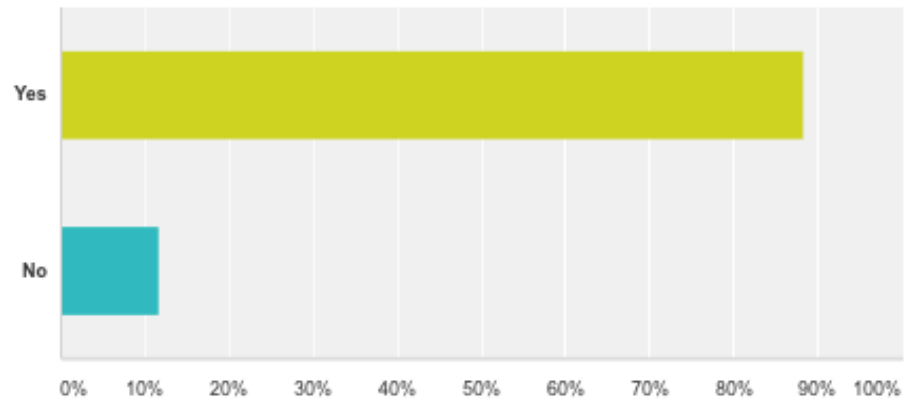
Q10

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Would you think that sound archiving would be beneficial?

Answered: 17 Skipped: 0



| Answer Choices ▾ | Responses ▾ | |
|------------------|-------------|----|
| ▼ Yes | 88.24% | 15 |
| ▼ No | 11.76% | 2 |
| Total | | 17 |

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